AdventHealth Kansas City Neuroscience Newsletter

October 2025

This edition includes: New Physicians | Robotic Spine Surgery | Peripheral Nerve Stimulation | Psychiatry Connection | Our Team & Sites

Welcome New Physicians

John Croom, MD
AHMG Neurology at Shawnee Mission

We are pleased to welcome John E. Croom, MD, PhD, as Medical Director of our Epilepsy Program. Dr. Croom is a board-certified neurologist specializing in epilepsy and seizure disorders. Practicing in Kansas City since 2006, he previously served as Medical Director of the Level IV Epilepsy Center at Saint Luke's Hospital where he led comprehensive epilepsy care and advanced diagnostic programs. Dr. Croom completed his residency and fellowship at Harvard Medical School's Neurology Program and earned both his MD and PhD in Neuroscience from the University of Oklahoma College of Medicine. With his expertise and leadership, Dr. Croom will advance the growth of our epilepsy services and the new Epilepsy Monitoring Unit (EMU) at AdventHealth Shawnee Mission.

Ron Fields, MD
AHMG Neurology at Shawnee Mission

AdventHealth is excited to welcome Ronald K. Fields, MD, MS, to our Epilepsy Program. Dr. Fields is a board-certified epileptologist with more than 20 years of experience in the diagnosis and treatment of epilepsy and seizure disorders. He provides comprehensive, personalized care for adults with epilepsy, emphasizing evidence-based medicine and the latest therapies, including epilepsy surgery and neurostimulation. Dr. Fields earned his undergraduate degree in electrical engineering from Texas A&M University, his medical degree and master's in neuroscience from Baylor College of Medicine and completed residencies in internal medicine at the University of Massachusetts and neurology at Beth Israel Deaconess Medical Center, where he also completed his epilepsy fellowship. He joins AdventHealth after many years of epilepsy leadership at Saint Luke's Health System, bringing his clinical expertise and dedication to compassionate, patient-centered care to our growing neuroscience team.

Amandeep Kalra, MD
Cancer Institute at Shawnee Mission

Our Neuroscience & Cancer programs are pleased to welcome Amandeep Kalra, MD, FACP, as Medical Director of our new Neuro-Oncology Program, further strengthening our state-of-the-art brain tumor treatment services. Dr. Kalra is a board-certified neuro-oncologist, neurologist, and internist, fellowship-trained in neuro-oncology at Memorial Sloan Kettering Cancer Center. He joins AdventHealth from Dartmouth-Hitchcock Medical Center, where he provided advanced neuro-oncology care and led clinical trials focused on glioblastoma and other central nervous system tumors. With over a decade of experience Dr. Kalra returns to the Kansas City region to lead and build our comprehensive Neuro-Oncology Program, dedicated to delivering multidisciplinary, compassionate care using the latest medical and surgical advancements for patients with brain and spinal tumors.

Matthew Pierson, MD
AHMG Neurosurgery at Shawnee Mission

AdventHealth Shawnee Mission is pleased to welcome Matthew J. Pierson, MD, to our Neurosurgery Program. Dr. Pierson is a board-certified neurosurgeon with advanced fellowship training in cerebrovascular and skull base surgery. He specializes in the surgical treatment of complex brain and vascular disorders, bringing deep expertise in both microsurgical and minimally invasive techniques. A native of Kansas, Dr. Pierson earned his medical degree from the University of Kansas School of Medicine and his undergraduate degree in biology from Kansas State University. He completed his neurosurgery residency and cerebrovascular/skull base fellowship at Saint Louis University. Prior to joining AdventHealth, Dr. Pierson served as President of Midwest Neurosurgery Associates in Kansas City. He is known for his commitment to compassionate, patient-centered care and his passion for advancing the field through research and education.

Robotic Spine Surgery

Modern complex spine surgery represents an advanced, multidisciplinary approach to treating a variety of spinal disorders, including deformities, degenerative diseases, trauma, tumors, and infections. The field blends open surgical techniques and increasingly, minimally invasive surgery (MIS), with the goal of improving precision, reducing tissue damage, minimizing complications, and enhancing recovery. These procedures often involve spinal fusion, decompression, osteotomies, instrumentation with pedicle screws, and correction of spinal alignment. The complexity arises from the intricate three-dimensional anatomy of the spine, proximity to the spinal cord and nerves, and the necessity to stabilize or restore biomechanics while preserving neurological function. Surgeons utilize detailed preoperative imaging, intraoperative navigation, and neuro-monitoring to optimize safety and accuracy. MIS reduces muscle dissection by using small incisions and muscle-sparing methods, leading to less blood loss, less postoperative pain, shorter hospital stays, and faster recoveries.

The Globus Excelsius GPS robot is a cutting-edge robotic navigation platform revolutionizing modern spine surgery. It combines a rigid robotic arm with integrated real-time 3D navigation to guide surgical instruments and implant placement with millimeter-level precision. The system works with any preoperative or intraoperative CT and fluoroscopy imaging, enabling surgeons to pre-plan screw trajectories and implant positioning tailored to the patient's anatomy. During surgery, the robot's articulated arm aligns itself precisely to the planned trajectory, guiding the surgeon's instruments with 98% accuracy in screw placement. The system continuously provides live visual feedback on the placement of screws and implants, enhancing intraoperative decision-making and safety. The force-sensing technology alerts surgeons to any deviation or deflection from the intended path. This reduces risks of misplaced implants, nerve injury, and tissue trauma.

By integrating robotics and navigation, ExcelsiusGPS facilitates minimally invasive approaches, allowing small incisions and muscle-sparing techniques. It decreases radiation exposure compared to traditional fluoroscopy-reliant methods, benefiting both patients and operating room staff. Clinical use has demonstrated less blood loss, reduced postoperative pain, faster recovery, and improved surgical efficiency. The platform is versatile for a wide range of spinal procedures from cervical to sacral, including complex deformity corrections, tumor resections, and revision surgeries. Overall, the Globus ExcelsiusGPS is at the forefront of transforming complex spine surgery into a safer, more precise, and patient-centered discipline. The globus robot has been instrumental in advancing neurosurgical spine care. I have performed close to 500 surgeries utilizing it.

Sam Taylon, MD - AHMG Neurosurgery

Peripheral Nerve Stimulation

Chronic pain brings a heavy burden upon our country and our world. Estimations of up to 24% of the American population suffer from chronic pain. Pain is now a leading cause of health costs and lost productivity in the U.S., estimated to cost hundreds of billions of dollars annually. The condition of chronic pain can be difficult to diagnose and treat. Pain etiologies, or generators, are often multifactorial involving various muscles, nerves, joints, fascia, and can even have a psychologic component. Treatment of these pain conditions is complex and often involves a multidisciplinary approach including medications, physical therapy, psychological therapy, injections, nerve stimulation, and/or surgical interventions.

Peripheral nerve stimulation (PNS) emerged as a pain therapy in the 1960's. Research and technology has advanced exponentially since that time and there are now multiple devices used today to stimulate peripheral nerves and new target nerves used for this therapy. These PNS devices can be generally categorized into temporary stimulators and permanent (implanted) stimulators. There is usually a trial period before the permanent implantation of a PNS device. This allows the patient to see if stimulating a certain peripheral nerve target actually results in pain reduction. Common nerve targets used for this therapy today include the suprascapular and axillary nerves for shoulder pain, femoral and genicular nerves for knee and hip pain, and cluneal and medial branch nerves for axial low back pain, among others.

A recent clinical trial (COMFORT trial) studied the effect of peripheral nerve stimulation on various pain conditions.

Peripheral Nerve Stimulation Continued

In particular, it studied the effect of a permanent (implantable) PNS device on various pain conditions. The pain areas studied in this trial include low back, knee, ankle/foot, and shoulder. Overall results demonstrated significant pain relief sustained out to 12 months. The overall responder rate was 87% and with an average of 69% pain relief. The figures below assist in summarizing the findings of this clinical trial. Of note with the COMFORT trial, there were no significant adverse events reported demonstrating the safety profile of implanted peripheral nerve stimulation.

Interventional pain medicine is a field that continues to evolve and adapt to the latest evidence and technology available. Peripheral nerve stimulation is one emerging therapy among many that may be available to help patients achieve pain control. For more information regarding PNS or other advanced pain therapy, please contact the Advent Pain Clinic.

Adam Madl, MD – Ottawa Pain Management

Psychiatry and the Connection to Neuroscience

Psychiatry plays a vital and increasingly integrated role across neurology, neurosurgery, and neuroscience, contributing to a more holistic understanding and treatment of brain-related disorders.

Historically, neurology and psychiatry originated as a unified discipline. Modern neuropsychiatry revives this integration by focusing on conditions such as epilepsy, Parkinson's disease, and dementia, which exhibit both neurological and psychiatric features. Additionally, disorders like schizophrenia, bipolar disorder, and major depression involve disruptions in brain function, necessitating collaborative care between neurologists and psychiatrists.

In the field of neurosurgery, psychiatry contributes significantly to both preoperative and postoperative care. Mental health screenings are essential for optimizing surgical outcomes, while therapeutic interventions—such as deep brain stimulation (DBS)—are employed to treat severe, treatment-resistant psychiatric conditions like obsessive-compulsive disorder (OCD) and major depressive disorder.

Neuroscience provides the foundational biological framework for understanding brain structure, function, and connectivity. It offers critical insights into the neural substrates of cognition, emotion, and behavior—domains central to psychiatric disorders. These conditions often arise from dysregulation in neural circuits, neurotransmitter systems, and neurodevelopmental processes. Psychiatry plays a pivotal role by anchoring neuroscientific research in the lived experiences of individuals with mental illness, thereby providing the clinical context necessary to interpret findings meaningfully.

Diagnostic frameworks and therapeutic interventions developed in psychiatry offer a rich source of phenotypic data that guide neuroscientific inquiry into the biological underpinnings of behavior, emotion, and cognition. For instance, disruptions in prefrontal-limbic pathways are implicated in mood and anxiety disorders, while aberrant dopaminergic signaling is central to schizophrenia and other psychotic disorders. Cutting-edge techniques such as optogenetics, connectomics, and neuroimaging have enabled researchers to map these dysfunctions with increasing precision, facilitating the development of novel therapeutics and biomarkers.

Moreover, psychiatry plays a key role in translational neuroscience by evaluating how interventions—ranging from pharmacological treatments to neuromodulation techniques like transcranial magnetic stimulation (TMS) and DBS—affect brain function. These therapeutic outcomes provide real-world evidence of neuroplasticity and help refine models of brain-behavior relationships.

The incorporation of multidisciplinary care—bringing together neurosurgeons, neurologists, pain specialists, psychiatrists, and psychologists—ensures that both physical and mental health are addressed. This collaborative approach enables personalized, holistic care and coordinated support, ultimately improving patient recovery and quality of life.

Umang Shah, MD, MPH, Medical Director - AHMG Psychiatry and Wellbeing

AdventHealth

AdventHealth Comprehensive Neuroscience Services

Neurosurgery

Back Pain
Brain Tumors
Carpal Tunnel
Cerebral Aneurysm/AVM
Disc Herniations & Ruptures
Pituitary Tumors
Radiculopathy & Sciatica
Radiosurgery for Brain & Spine Tumors
Scoliosis
Spinal Trauma or Fractures
Spinal Tumors

Neurology

Spinal Cord Injury
Parkinson's Disease
Bell's Palsy
Neuropathy
TIA & Stroke
Multiple Sclerosis
Headaches & Migraines
Movement Disorders
Memory Loss & Dementia
Epilepsy & Seizures
EMG
Myasthenia Gravis

Interventional Pain Management

Minimally Invasive In-Office Procedures
Epidural Steroid Injections
Diagnostic & Therapeutic Nerve Blocks
Trigger Point Injections
Radio Frequency Nerve Ablation
Spinal Cord Stimulator

We combine advanced imaging, clinical trials, and individualized treatment plans to ensure the highest quality care for our patients. AdventHealth's world-class expertise and state-of-the-art minimally invasive technology provides whole-person care for complex neurological conditions.

Neuroscience Providers

Neurosurgery


Steven Hess, MD


Jayson Neil, MD


Paul O'Boynick, MD


Matthew Pierson, MD

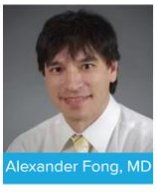

Samuel Taylon, MD

Neurology

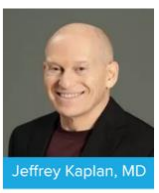

John Croom, MD


John Eatman, MD


Ron Fields, MD


Alexander Fong, MD


Ryan Johnson, MD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Interventional Pain Management


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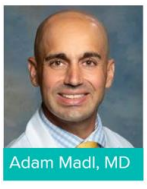
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